Population-based Incidence of Infection with Selected Enteric Bacterial Pathogens for Children under 5 Years of Age, FoodNet, 1996-1998

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Background: Previous studies have shown that the disease burden of bacterial enteric infections falls disproportionately on children under 5 years old. This study describes population-based incidence rates of laboratory-confirmed infections with *Campylobacter, E. coli* O157, *Listeria, Salmonella, Shigella,* and *Yersinia* in children < 5 years of age in the CDC's Foodborne Diseases Active Surveillance Network (FoodNet), 1996-1998.

Methods: Culture-confirmed cases of infection with these 6 pathogens were ascertained through active laboratory surveillance. The FoodNet catchment area included Minnesota, Oregon, and selected counties in California, Connecticut, Georgia, Maryland and New York. Incidence rates for each pathogen per person-year of observation (py) were calculated by year, site, season, sex, and age. Age-specific postcensus estimates for the 3-year period were used to calculate the FoodNet population. Incidence rate ratios and 95% confidence intervals (CI's) were used to estimate relative risk (RR) in those < 5 years.

Results: There were 3,488,746 py for children < 5 years and 51,115,328 total py for all ages; children <5 accounted for 7% of total py. For children < 5 years, there were 5,210 cases of infection with any of the 6 pathogens, accounting for 21% of cases for all ages. By pathogen, the number of cases and percent of cases for < 5 years out of all reported FoodNet cases was: *Campylobacter* 1505 (13%); *E. coli* O157 359 (29%); *Listeria* 25 (10%); *Salmonella* 1941 (27%); *Shigella* 1133 (28%); *Yersinia* 247 (53%). Culture-confirmed cases per 100,000 py for those < 5 were 43.1 for *Campylobacter*, 10.3 for *E.coli* O157, 0.7 for *Listeria*, 55.6 for *Salmonella*, 32.5 for *Shigella*, and 7.1 for *Yersinia*. For age < 5, RR's compared with age 5 and older for the respective pathogens were 2.1 for *Campylobacter*, 5.7 for E. coli O157, 1.4 for *Listeria*, 5.1 for *Salmonella*, 5.4 for Shigella, and 15.3 for *Yersinia*. Incidence rates varied widely across the 7 FoodNet sites. In general, for the 5 pathogens other than *Listeria*, sites with higher incidence rates for age < 5 also had high rates for age 5 and older, compared with other sites. However, for *Campylobacter*, *E. coli* O157 and *Shigella*, sites with higher rates for age < 5 also had a greater contrast between age < 5 and age 5 and over than did other sites.

Conclusion: This population-based study confirmed a disproportionate disease burden for these enteric bacterial infections in children < 5 as both percent of cases and per 100,000 py. The absolute and relative disease burden for age < 5 years differed by pathogen and by FoodNet site. This disease burden suggests that investigation of risk factors specific to this age group and a review of current prevention and control strategies and their enhancement specifically for young children might lead to appreciable reductions in illness.

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